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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/439,915	11/12/1999	PETER SEITZ	PAFE.P-001US	2282
21121	7590	12/19/2003	EXAMINER	
OPPEDAHL AND LARSON LLP			WILSON, JACQUELINE B	
P O BOX 5068			ART UNIT	
DILLON, CO 80435-5068			PAPER NUMBER	

2612

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/439,915

Applicant(s)
Seitz et al.

Examiner
Jacqueline Wilson

Art Unit
2612



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Nov 12, 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3 and 4 6) ☐ Other:

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DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to the drawings, each of the lettered items should appear in upper case, without underling or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- (b) Cross-Reference to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Sequence Listing," a table, or a computer program listing appendix submitted on compact disc (see 37 CFR 1.52(e)(5)).
- (e) Background of the Invention.
 1. Field of the Invention.

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2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.

- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (I) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing, if on paper (see 37 CFR 1.821-1.825).

Claim Objections

2. Claim 1 is objected to because of the following informalities: line 7 indicates that a single output value or a plurality of output values may be read out. In line 8, combining of output values are claimed which indicates that more than one output value is used. It is unclear as to what is actually being claimed. Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 112

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3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "wherein during said longer exposure of one subset, steps b) are performed for all other subsets". Claims 1 and 8 states that a first subset includes a longer and a shorter exposure being performed. It is unclear of the claimed limitation of Claim 9 since both long and short exposure is performed in a first subset. No art rejection is supplied.

Claim Objections

4. Claim 6 is objected to because of the following informalities: Claim 6 recites the limitation "the processing" in line 1. This limitation is vague and indefinite. Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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6. Claims 1, 2, 4-8, 10, 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Dierickx et al. (US 6,011,251).

Regarding Claim 1, Dierickx et al.'251 teaches an image sensing device (referred to as CMOS image device) containing a plurality of pixels (col. 1, lines 19+; although one pixel is explained throughout the reference) comprising in n interrogation runs performs on a first subset of pixels where n is an integer greater than or equal to 2 (col. 5, lines 55+), resetting the first subset of pixels (see also fig. 5), exposing the first subset of pixels and reading out the output values (col. 6, lines 10+), combining the output values into a first combined output value (col. 6, lines 24+), and repeating steps for at least one second subset of pixels (col. 3, lines 15+).

Regarding Claim 2, Dierickx et al.'251 teaches the subsets are single pixels (the prior art teaches the steps of a single pixel in an image sensor array).

Regarding Claim 4, Dierickx et al.'251 teaches at least one output value is stored (col. 6, lines 15+).

Regarding Claim 5, although Dierickx et al.'251 does not specifically teach the steps are repeated until each pixel has been read out at least once, it is inherent that each pixel is read out for producing a complete image with wide dynamic range.

Regarding Claim 6, Dierickx et al.'251 teaches processing of one subset temporally overlaps with the processing of the following subset of pixels (see fig. 5 with respect to reset pulses).

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Regarding Claim 7, Dierickx et al.'251 teaches integration a and b are performed at different intervals. This is synonymous to $N=2$.

Regarding Claim 8, Dierickx et al.'251 teaches in step a), a long and short exposure are performed (col. 5, lines 60- col. 6, line 6).

Regarding Claim 10, Dierickx et al.'251 teaches output values are combined into a combined output value by means of a merging function which is truly monotonic, continuous and continuously differentiable in all the output values (see figs. 3a and 3b).

Regarding Claim 13, Dierickx et al.'251 teaches the image sensor is an active pixel sensor (referred to as having active pixels col. 4, lines 51+).

Regarding Claim 14, Dierickx et al.'251 teaches the output values are combined via a linear or non-linear combination yielding the response curve in figure 3a performed externally to the pixel sensor, inside or outside to the image sensor. It is inherent that a dedicated digital or analog computation unit is present in order to provide an output signal as represented in figure 3a for the purpose of creating a dynamic output image.

Claim 15 is analyzed and discussed with respect to Claim 1. (See rejection of Claim 1 above.)

Regarding Claim 16, Dierickx et al.'251 teaches the image sensor is an active pixel sensor (referred to as having active pixels col. 4, lines 51+).

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Claim Rejections - 35 U.S.C. § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dierickx et al. (US 6,011,251).

Regarding Claim 3, Dierickx et al.'251 teaches a matrix of pixels (col. 1, lines 20+).

Although it is not specifically disclosed that the active area is partitioned into subsets with equal number of pixels, one having ordinary skill in the art would recognize that most image sensors include equal number of pixels within the matrix array set out by rows and columns. Therefore, it would have been obvious to one having ordinary skill in the art to partition the image sensor into equal number of pixels.

Allowable Subject Matter

9. Claims 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

10. Any inquiries concerning this communication from the examiner should be directed to **Jacqueline Wilson** whose telephone number is (703) 308-5080. The examiner can normally be reached Monday-Friday (alternate Fridays off) from 9:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reached at (703) 305-4929. The fax number for this group is (703) 872-9314.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

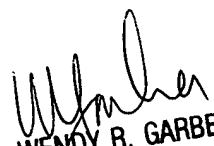
or Faxed to:

(703) 872-9314, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V.A., Sixth Floor (Receptionist).

JBW

December 4, 2003


WENDY R. GARBER
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